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International Patent Application No: PCT/NO03/00213 - Tomra Systems ASA, et al.

Referring to the International Search Report (ISR) dated 12 December 2003, we hereby submit amended claims (enclosed) supported by the following comments and observations.

The ISR cites US 2001042789 A1 as being of particular relevance regarding novelty and inventive step.

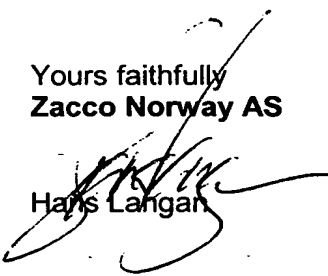
The cited publication discloses (figure 3) a device with two transparent scanning surfaces (windows) at an angle to one another, and two fixed mirrors and one moving mirror for use with a single image sensor. The cited device requires that the camera is synchronized with the moving mirror. Furthermore, the cited device produces the two images in a time sequence.

The international application discloses a device having two independant mirror pairs, where a mirror of the first pair is placed adjacent to a mirror of the second pair, and both adjacent to the camera optical axis. The invented device comprises a stationary geometrical and optical arrangement, simultaneously yielding two different view fields into a single camera exposure.

The imaging is effected by at least a first pair (5, 6) and a second pair (7, 8) of mirrors, where the mirrors in each pair are facing one another and where the pairs are positioned on opposite sides of the optical axis of said camera (1), one mirror (5) of the first pair being fixedly positioned adjacent to one mirror (7) of the second pair, at an angle to said axis, whereby said selected portions are shown as respective mirror images in the respective mirror (5, 7) and two areas along the longitudinal direction of the container (3), optionally including one or both end faces, are imaged simultaneously by the camera (1).

Claim 1 has been amended to better distinguish the invention from the cited prior art.

Yours faithfully
Zacco Norway AS


Hans Langan

Enclosures: Amended claims (two sheets)

A m e n d e d P a t e n t C l a i m s

1.

5 A device for recognising a container, such as a bottle or a can, comprising a camera and light emission means (1, 2) arranged for imaging a selected portion of the container (3), said camera and light emission means being connected to a processor or the like adapted for recognition, based on a camera-recorded image, of special features related to the container, *characterised in that*

10 said imaging is effected by at least a first pair (5, 6) and a second pair (7, 8) of mirrors, where the mirrors in each pair are facing one another and where the pairs are positioned on opposite sides of the optical axis of said camera (1), one mirror (5) of the first pair being fixedly positioned adjacent to one mirror (7) of the second pair, at an angle to said axis,

15 whereby said selected portions are shown as respective mirror images in the respective mirror (5, 7) and two areas along the longitudinal direction of the container (3), optionally including one or both end faces, are imaged simultaneously by the camera (1).

20 2.

A device according to claim 1, characterised in that the line of intersection between the mirror faces (5, 7) adjacent to the optical axis of the camera is essentially perpendicular to the optical axis, these mirror faces being positioned symmetrically and directed in the opposite direction to each other.

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3.

A device according to claim 2, characterised in that the mirror faces (5, 7) adjacent the optical axis of the camera are so positioned that one of their sides edges meet.

30 4.

A device according to claim 2, characterised in that the mirror faces (5, 7) adjacent to the optical axis of the camera are offset relative to each other along the optical axis.

5.

35 A device according to any one of the preceding claims, characterised in that the mirror surfaces (5, 6, 7, 8) in each pair are positioned obliquely relative to each other.

6.

A device according to any of the preceding claims, characterised in that the imaging is carried out when the container (3) is on a conveyor (4) provided in a reverse vending machine for beverage containers.

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7.

A device according to any one of the preceding claims, characterised in that the processor comprises a comparator adapted to recognise, on the basis of the image selected by the processor, the respective areas along the longitudinal direction of the container (3) on comparison with a reference archive.

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